



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Per MANSSON et al. Confirmation No: 3651
Appl. No. : 10/517,321
Filed : August 23, 2005
Title : SYSTEM, DEVICE AND METHOD FOR DETECTION
OF SEVERAL INDIVIDUAL ANALYTES IN A SOLUTION,
AND A DISPOSABLE FLOW CELL FOR USE THEREIN

TC/A.U. : 1641
Examiner : U. Jung

Docket No.: MANS3012/REF
Customer No: 23364

APPEAL BRIEF 37 CFR §41.37

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This brief on appeal is submitted along with the required fee of \$255.00 under § 41.20(b)(2) for a small entity. The period for filing the appeal brief has been extended to expire on July 15, 2008, by the filing herewith of a Petition for a Two Month Extension of Time and payment of the required fee.

Any additional fees necessary for this appeal may be charged against the undersigned's Deposit Account No. 02-0200.

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41.37 (c)(1)(i). REAL PARTY IN INTEREST

The real party in interest is the Assignee of record, BIOSENSOR APPLICATION SWEDEN AB

41.37 (c)(1)(ii). RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences with respect to the claimed invention which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal known to appellant, appellants' legal representative or assignee.

41.37 (c)(1)(iii). STATUS OF CLAIMS

This application contains 34 claims which were subject to a restriction requirement. Claims 1-9 and 15-34 have been canceled from the application without prejudice or disclaimer as being directed to non-elected subject matter. Claims 10-14 are pending in the present application and have been finally rejected. Claims 10 to 14 are the claims on appeal.

41.37 (c)(1)(iv). STATUS OF AMENDMENTS

No amendment was filed after final rejection and the status of the claims is as finally rejected.

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41.37 (c)(1)(v). SUMMARY OF CLAIMED SUBJECT MATTER

Claim 14 claims: A multiple piezoelectric crystal microbalance device comprising a connecting station (100,101) for receiving and individually operating an array of piezoelectric crystal microbalances and a plurality of individually detachable piezoelectric crystal microbalance flow-through cells for engaging with the connecting station, wherein the connecting station comprises: (Page 5, lines 12-14 and Fig. 1.)

a connecting panel (112; 113) having an array of cell connecting receptors (118), each cell connecting receptor comprising a receptor connector portion (120) for automatic mating operative engagement with a cell connector portion (24) of said piezoelectric crystal microbalance flow-through cell (10) upon plugging said flow-through cell (10) into the connecting station (100,101), (page 5, lines 15-18 and Fig. 1.) and wherein the receptor connector portion (120) comprises:

a pair of electric connecting ports (126, 128) for communication with a power and measurement means (130) for oscillating a piezoelectric crystal (50) carrying two electrodes (56,62) in a cell compartment (34) of one operatively engaged flow-through cell (10) and for measuring oscillating characteristics of the piezoelectric crystal (50); and (Page 5, lines 18-20.)

a pair of fluid connecting ports (122, 124) for communication with flowing means (70) for uninterrupted flowing of a solution (75) and a test solution aliquot (83) to, and through, the cell compartment (34). (Page 5, lines 23 and 24.)

41.37 (c)(1)(vi). GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether the rejection of claim 10 under 35 U.S.C. §103(a) as being obvious over Kawakami et al. (US Pat. No. 5,728,583) in view of Luscher (US Pat. No. 3,585,527) establishes a prima facie case of obviousness?

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Whether the rejection of claims 11-13 under 35 U.S.C. §103(a) as being unpatentable over Kawakami in view of Luscher and Takeuchi et al. (US Pat. No. 6,326,563) establishes a prima facie case of obviousness?

Whether the rejection of claim 14 under 35 U.S.C. §103(a) as being unpatentable over Kawakami in view Luscher and Ricchio et al. (US Pat. No. 5,130,095) establishes a prima facie case of obviousness.

Whether the provisional obviousness-type double patenting rejection of claims 10, 12 and 13 as being unpatentable over claims 2-47 of co-pending Application No. 10/539,065 in view of Kawakami is proper?

Whether the provisional obviousness-typ double patenting rejection of claim 14 over co-pending Application No. 10/539,065 in view of Kawakami and Ricchio et al. Is proper?

41.37 (c)(1)(vii). ARGUMENT

CLAIM INTERPRETATION AND REQUIREMENTS FOR AN OBVIOUSNESS REJECTION

As noted in MPEP § 2141.02, ascertaining the differences between the prior art and the claims at issue requires interpreting the claim language and considering both the invention and the prior art reference as a whole. In determining the differences between the prior art and the claims, the question under 35 USC 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. It is further noted in this section that a patentable invention may lie in the discovery of the source of a problem even thought the remedy may be obvious once the source of the problem is identified. This is part of the subject

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matter as a whole which should always be considered in the determination of the obviousness of an invention under 35 USC 103.

Examples Of Basic Requirements of a Prima Facies Case of Obviousness

The appellant submits that the criteria set forth in the MPEP provides guidance in determining the issue of obviousness of the claims on appeal.

---SECTION---2143 Examples Of Basic Requirements of a Prima Facie Case of Obviousness

The Supreme Court in KSR International Co. v. Teleflex Inc., 82 USPQ2d 1385, 1395-97 (2007) identified a number of rationales to support a conclusion of obviousness which are consistent with the proper "functional approach" to the determination of obviousness as laid down in Graham. The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit.

SECTION--2143.03 All Claim Limitations Must Be Taught or Suggested

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Appellants note the Examiner's comments in the Final Rejection on page 5 that it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art as the basis for obviousness. This statement is tantamount to the statement that the invention was well within the ordinary skill in the art which has been found to be insufficient. A statement that modifications of the prior art to meet the claimed invention would have been ""well within the ordinary skill of the art at the time the claimed invention was made"" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not

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sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levingood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). ***">[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR*, 550 U.S. at ___, 82 USPQ2d at 1396 quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006).<

THE FIRST OBVIOUSNESS REJECTION

The rejection of claim 10 as being obvious over Kawakami, and Luscher, includes the premise that constructing a formerly integral structure in various elements involves only routine skill in the art. This is based on *Nerwin v. Erlichman*, 168 USPQ 177, 179, which is a Board of Appeals decision in an interference and involves no such holding. In fact, the term "routine skill in the art" is not found in any portion of the decision. Headnote [4] of the decision states that the mere fact that a given structure is integral does not preclude its consisting of various elements for support of a count in an interference. This is completely different from a holding that constructing a formerly integral structure in various elements involves only routine skill which is in clear error. There is nothing in Kawakami which suggest detachable flow-through cells and Kawakami fails to disclose individual flow-through cells.

As stated at the top of column 6 and as shown in Figure 9, of Kawakami, a clamp 90 is used to hold the lower member 10 and the upper member 20 together to complete the assembly of the flow cell. The areas defined by the plate shaped quartz oscillators and the collar-like raised section of the upper member 20 become the cell compartments. There is no teaching to section these compartments to individual absent the disclosure in the present application and even under KSR there must be some teaching to modify the reference.

As discussed in MPEP § 2144, if the facts in a prior legal decision are sufficiently similar to those in an application under examination, the examiner may use the rationale

used by the court. Examples directed to various common practices which the court has held normally require only ordinary skill in the art and hence are considered routine expedients are discussed below. If the applicant has demonstrated the criticality of a specific limitation, as in the present case the individually detachable cells, it would not be appropriate to rely solely on case law as the rationale to support an obviousness rejection.

In this regard, the Final Rejection relies upon (*Making Separable*), *In re Dulberg*, 289 F.2d 522, 523, 129 USPQ 348, 349 (CCPA 1961) (The claimed structure, a lipstick holder with a removable cap, was fully met by the prior art except that in the prior art the cap is "press fitted" and therefore not manually removable. The court held that "if it were considered desirable for any reason to obtain access to the end of [the prior art's] holder to which the cap is applied, it would be obvious to make the cap removable for that purpose."). The facts with respect to the relationship of the prior art to the claimed invention in the present application are not sufficiently similar to those in the Dulberg decision for it to be controlling of obviousness of the presently claimed invention and reliance thereon is in error. Moreover, there is no reason suggested in the prior art to the claimed invention which includes a plurality of individually detachable microbalances in accordance with the claimed invention.

The statement of the rejection with respect to the teachings of the Kawakami et al reference appears to be in clear error.

The connecting station 100 and 101 referred to in item 7 of the Final Rejection is actually referred to at column 6, line 30 of the patent as a flow cell 100 comprising an upper member 20, an outer seal member 30, cell compartment seal members 40 and plate-shaped quartz oscillators 50. Moreover, elements 63 and 64 in Figure 9 are tubes and not piezoelectric crystal micorbalances as stated in the rejection. This portion of the rejection is in clear error.

Similarly, the identification of reference elements 10 in Fig 6 on page 4 of the rejection is in clear error. As clearly stated at column 2, line 13, Fig 6 is a plane view of the lower member, which is the lower member 10 of the flow cell 100. It cannot be reasonably construed as a connecting panel as set forth in the rejection and as related to the presently claimed invention. There is no reasoned statement or explanation as

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to how one of ordinary skill in the art would interpret this as a connecting panel as presently claimed. Specifically, Applicants respectfully submit that Kawakami fails to disclose (1) a plurality of individually detachable piezoelectric crystal microbalance flow-through cells and (2) a pair of fluid connecting ports in the connector portions of the connecting panel. Moreover, reference elements 11a-11c in Fig 6 are circular pits in the lower portion 10 of the flow cell 100 and not cell connector portions in accordance with the presently claimed invention and such interpretation to the contrary represents a clear error.

The rejection states that “upon plugging the flow through cell, 10, (previously identified in the rejection as a connecting panel) into the connecting station is clearly in error as contrary to the clear teaching of the patent at column 6, line 2, “...and the upper and lower member 10, 20 are clamped with the metal clamp 90 to complete assembly of the flow cell. As shown in, e.g., Figures 2 and 3 of the instant application, the flow-through cells of the instant application comprise both a first half 14 and a second half 16. Then, as shown in Figure 8, the flow-through cell 10 comprising a first half and a second half 20 is placed in the cell connecting receptor of the connecting panel 112. The flow through cell and the connecting panel are clearly separate elements. In fact, the detachability of the flow-through cells depends on the flow through cells having a housing separate of the connecting panel which is clearly not shown or suggested to one skill in the art by the primary reference.

Moreover, as clear taught in the reference, at column 5, lines 52 to 55, elements 71a, 71b, and 71c are cables which connect to an oscillator or frequency counter and do not plug the flow through cell into a connecting panel as required by the claims on appeal.

However, Applicants note that the Final Rejection also alleges that the lower member 10 corresponds to the connecting panel recited in claim 10 of the instant application. Thus, the Official Action appears to allege that the lower member 10 serves the dual purpose of serving as the connecting panel and the bottom portion of the flow-through cells. Such an interpretation is clearly contrary to what is disclosed and claimed in the instant application.

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Applicants have not interpreted that element 10 of Figures 2 and 3 represent a connecting panel other than to assert that that is an incorrect position held in the final rejection. At page 12 of the final rejection it is stated that the bottom of the flow-through cell is not represented by element 10 of Figures 2 and 3 but rather by 50a. This is contrary to any reasonable interpretation of the reference which at column 6 lines 4 and 5 states here, the areas defined by the plate-shaped quartz oscillators 50a-50c and not as the bottom of the flow-through cells as stated in the Official Action. Moreover, in the same paragraph these elements are stated to be oscillators (50a-50c). Clearly, one of ordinary skill in the art would not interpret the teaching of the reference as set forth in the final rejection which is not an anticipation rejection but on the grounds of obviousness. Clearly the final rejection relies upon Applicants teaching to interpret the primary reference to meet the requirements Applicants claimed invention and contrary to an understanding of the reference by one of ordinary skill in the art to which the invention pertains.

Assuming Kawakami is interpreted such that the lower member 10 is the flow-through cell recited in claim 10, then Kawakami fails to disclose a connecting panel as recited in claim 10. Assuming Kawakami is interpreted such that the lower member 10 is the connecting panel recited in claim 10, the Kawakami fails to disclose a flow through cell. The bottom of the alleged flow-through cells would be the plate-shaped quartz oscillators 50. This configuration would clearly fail to disclose a flow-through cell as the term is used in the instant application, because the flow-through cell would not comprise a unit which encases the piezoelectric crystal microbalances.

Therefore, since there is no reasonable interpretation of Kawakami in which the reference may be deemed to disclose a flow-through cell and a connecting panel, where the flow-through cell and the connecting panel are separate elements, Applicants respectfully submit that the Kawakami reference fails to disclose the elements of the claims which the Official Action alleges are disclosed in the reference.

The teaching of the primary reference does not teach the claimed invention and there is nothing to suggest to one of ordinary skill in the art to make the flow through cell of Kawakami with a single cell to arrive at the present invention. Even under KSR, one cannot use impermissible hindsight to reconstruct the claimed subject matter from the

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prior art reference. Accordingly, this rejection should be withdrawn or reversed on appeal.

THE SECOND OBVIOUSNESS REJECTION

The rejection of claims 11-13 under 35 U.S.C. §103(a) as being unpatentable over Kawakami in view of Luscher and Takeuchi et al. (US Pat. No. 6,326,563) does not establish a prima facie case of obviousness for the reasons discussed above in the first obviousness rejection. The teaching of the secondary reference does not overcome the deficiencies of the primary reference for the reasons discussed above. Accordingly, these rejections should be withdrawn.

THE THIRD OBVIOUSNESS REJECTION

The rejection of claim 14 under 35 U.S.C. §103(a) as being unpatentable over Kawakami in view Luscher and Ricchio et al. (US Pat. No. 5,130,095) does not establish a prima facie case of obviousness for the reasons discussed above in the first obviousness rejection. The teaching of the secondary reference does not overcome the deficiencies of the primary reference for the reasons discussed above. Accordingly, these rejections should be withdrawn.

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The Provisional Obviousness Double Patenting Rejections

The Provisional Obviousness Double Patenting Rejections have been requested to be held in abeyance as there is no indication of allowable subject matter of the relevant claims in any application. Should the rejection of the claims on appeal be sustained, the obviousness double patenting rejection in this application is moot. In this regard, it should be noted that the applications are not commonly owned and there is a different inventive entity in each application. However, there are common inventors in each application. Moreover, from an inspection of the Image File Wrapper of 10/539,065, there is no corresponding obviousness double patenting rejection in the '065 application, contrary to MPEP §804. In addition, the present application has the earlier filing date and priority dates so it would be entitled to be first issued as a patent with a rejection of the copending as set forth in the noted MPEP section.

The provisional obviousness-type double patenting rejection of claims 10, 12 and 13 as being unpatentable over claims 2-47 of co-pending Application No. 10/539,065 in view of Kawakami is not proper as it does not point out with the particularity necessary to determine the extent of the rejection. It simply draws a conclusion without the necessary specificity required by an obviousness rejection under 35 USC 103(a) as discuss infra and which is a requirement of MPEP§804.

The provisional obviousness-typ double patenting rejection of claim 14 over co-pending Application No. 10/539,065 in view of Kawakami and Ricchio et al. is not proper and should be withdrawn for the above reasons or held in abeyance.

Moreover, for the purpose of this appeal, it appears that the claims on appeal are obvious over those in the '065 notwithstanding the restriction requirement in the present application holding that such claims as those set forth in the '065 application represent patentably distinct inventions. Therefore, these rejections should be withdrawn or held in abeyance.

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CONCLUSION

In view of the above arguments, the rejection of the claims on appeal should not be sustained. The prior art rejection should be reversed and the application passed to issue.

Respectfully submitted,

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41.37 (c)(1)(viii) Claims appendix

10. A multiple piezoelectric crystal microbalance device comprising a connecting station (100,101) for receiving and individually operating an array of piezoelectric crystal microbalances and a plurality of individually detachable piezoelectric crystal microbalance flow-through cells for engaging with the connecting station, wherein the connecting station comprises:

a connecting panel (112; 113) having an array of cell connecting receptors (118), each cell connecting receptor comprising a receptor connector portion (120) for automatic mating operative engagement with a cell connector portion (24) of said piezoelectric crystal microbalance flow-through cell (10) upon plugging said flow-through cell (10) into the connecting station (100,101), and wherein the receptor connector portion (120) comprises:

a pair of electric connecting ports (126, 128) for communication with a power and measurement means (130) for oscillating a piezoelectric crystal (50) carrying two electrodes (56,62) in a cell compartment (34) of one operatively engaged flow-through cell (10) and for measuring oscillating characteristics of the piezoelectric crystal (50); and

a pair of fluid connecting ports (122, 124) for communication with flowing means (70) for uninterrupted flowing of a solution (75) and a test solution aliquot (83) to, and through, the cell compartment (34).

11. The multiple piezoelectric crystal microbalance device according to claim 10, wherein the individually operated piezoelectric crystal microbalances are electrostatically and electromagnetically shielded from each other.

12. The multiple piezoelectric crystal microbalance device according to claim 11, wherein the connecting station (100) comprises connection means (112) for serial interconnection of the flowing of the solution (75) and test solution aliquot (83) to and through the cell compartment (34) of the individual flow-through cells (10).

13. The multiple piezoelectric crystal microbalance device according to claim 11, wherein the connecting station (101) comprises connection means (113) for parallel connection of the flowing of the solution (75) and test solution aliquot (83) to and through the cell compartment (34) of the individual flow-through cells (10).

14. The multiple piezoelectric crystal microbalance device according to claim 11, further comprising grounding means (108) for electrical grounding of the flow solution (75) and the test solution aliquot (83) to the cell compartment (34) of each of the flow-through cells (10).

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41.37 (c)(1)(ix) Evidence appendix

None

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41.37 (c)(1)(ix) Related proceedings appendix

None